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ORIGINAL ARTICLES.

THE SOURCES AND CAUSE OF IRREGULAR FORMS OF MALARIA.*

JAMES H. WILSON, M.D., DOVER, DEL.

The recognition of the parasite origin of malarial fevers will obviate much of the confusion that has arisen in the medical nomenclature as to what is implied by the term malaria.

In this country the term is synonymous with swamp or ague poison, and by other authors in accordance with its etymology as a general term is made to include all kinds of disease produced by bad air. Aitken speaks of "paludal malarious poison" and of "animal malarial poison," and says that this toxic poison is capable of inducing certain morbid phenomena known as intermittent and remittent fevers, the recognized forms of the so-called regular types of the disease. It was generally assumed that the intermittent and remittent forms of fever are due to the same cause, and the difference in type is supposed by many authors to be a difference in degree only, the remittent being a manifestation of exposure to the poison in a more intense form.

This view seems to have received support from the fact that during convales-

cence from remittent attacks, intermittent fever often occur.

Sir Joseph Fayer in his work on the "Climate and Fevers of India" says: "Remission and intermission, however, are not to be regarded as absolute indications of degree of intensity; for a remittent may be comparatively mild, while an intermittent may become pernicious." This author, however, regards the types of malarial fevers as only different modes of expression of the same thing. And according to him such terms as jungle fever, terai fever, Bengal fever, Deccan fever, etc., merely express local varieties with no fundamental differences, though there may be certain subordinate features which distinguish each, depending on the local climate and meteorological conditions.

Whether conditions relating to climate and local surroundings, act upon the cause or upon the patient in modifying the type of malaria diseases, is an unsettled question; possibly they act in both ways.

Morehead, in his "Researches on Diseases in India," observes: "When the conditions of malaria exist in a great

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degree, remittent fever prevails, but when these lessen the type becomes intermittent. Dr. Chevers, in his recently published "Practical Notes," affirms: "I believe almost to a certainty that intermittents and remittents are not degrees of development of the same malady or the results of one and the same cause."

"The malarial fevers of Baltimore," an analysis of 616 cases of malarial fever with special reference to the relations existing between different types of hematozoa and different types of fever, says on page 99: "While in our experience we have seen nothing which would justify us in positively denying the possibility of the change of an organism from one type into another, according to the influences to which it is subjected. We have seen nothing whatever to suggest that this does occur, and we are decidedly inclined to believe that tertian, quartan and æstivo autummal parasites are permanently different varieties, of closely allied sporozoa."

W. S. Thayer and J. Hewston, authors of the Hospital Reports referred to in this work, are the only experimenters in this country whose investigations are deserving the appellation of a "Treatise on Malarial Poison." I wrote those gentlemen a few days since, and after quoting the paragraph above given I said: "Will you kindly tell me your views with reference to the so-called kindred malarial poisons or irregular forms of malaria? Are they distinct parasitic varieties or are they degrees of the same poison, influenced by local conditions? I refer to such diseases as periodical rheumatism, periodical neuralgia, orbital and intercostal neuralgia, spasmodic croup, hay fever, rose fever, influenza, lagrippe, spasmodic asthma, occurring with regular intermissions, erysipelas, hematuria and all diseases where the abnormal or pathologic phenomena are characterized by a periodicity not less pronounced than the regular intermittent fever." To this query I received the following reply:

DR. J. H. WILSON.

My Dear Sir:—Your letter was received this morning. It is rather hard to answer your questions in the space of a letter, but I will try. Our observations agreeing entirely with those of the

Italian and Russian observers, have shown us that the tertian and quartan parasites cause the great majority of the fevers occurring in the early part of the malarial season, and that these are in the great majority of instances quite regular in their manifestations, showing, in the simplest form, tertian or quartan paroxysms.

In our climate the quartan parasite may be almost left out of consideration, as it is so rare, only an occasional case occurring in a year in our large hospital material. Double infections with the tertian parasite, causing daily paroxysms, are very common. When one speaks of the regularity of these attacks it must be remembered that we are speaking in the stricter sense of the word, referring not to the subjective symptoms of the patient but to the actual behavior of the temperature or the systematic and regular measurements. Thus it is very common for a patient with double tertian fever to come to the hospital complaining of chills at irregular intervals, while temperature measurements will show a regular paroxysm occurring daily. As these, however, may vary in severity, some being associated with a chill and others not, the patient often gives a record of irregularity which is often, as far as the history goes, misleading. In the fall of the year with us, and with you beginning in the latter part of July and reaching its maximum in September and October, we see the cases of more irregular fever, which are due to the æstivo autumnal parasite. Now in all three varieties of fever it must be remembered that before the actual onset of the chills there may be quite marked prodromal symptoms. Thus in a case of inoculation with the parasite it is found sometimes that several days before the onset of sharply-defined paroxysms the patient has vague symptoms of headache, aching in his legs and back and other symptoms common to all infectious diseases. So it may happen not so very infrequently in private practice that a careful examination of the blood may reveal malarial parasites in association with headaches and backaches before there has been any sharp outbreak of fever. Again, the same is true after insufficient treatment with quinin. It is of course always to be remembered that the mere presence of the malarial parasite in the circulation is not enough to cause the paroxysms. They go through the regular cycle of existence and multiply, and it is only upon reaching a sufficient number that actual sharp paroxysms may occur. With every period of sporulation a certain number of parasites are destroyed, otherwise with the enormous power of multiplication which the organisms possess every case would become rapidly pernicious.

In some instances it has been shown, in characteristic tertian or quartan malaria, that after the first well-marked paroxysm so many parasites have been destroyed, that it takes practically a fresh incubation period, seven to fourteen days, before they reach sufficient numbers to produce a paroxysm again; so that the clinical picture is one of fever at long intervals. It is not impossible that there exists a certain number of cases where for a very considerable time, either before treatment or after insufficient treatment, the organisms are present in the blood in sufficient quantities to produce appreciable subjective symptoms without actually resulting in a sharp outbreak of fever.

Such a case I have recently seen in a boy who showed tertian parasites in his blood—who had had febrile attacks—and after considerable treatment at irregular intervals went some days with very marked subjective symptoms of headache, nausea and vomiting at periodical intervals, while careful measurements of the temperature showed no fever.

It is not unlikely that these cases are more numerous than we suspect. With regard to the other diseases of which you speak, there is no evidence to show that malaria can in any way be the direct cause of rheumatism, cramp, influenza or erysipelas. In association with certain malarial infections they may be very severe in the extremities and in the back, but it seems to me this is not to be confounded with true rheumatism.

On the other hand, there is no doubt that a patient whose general physical condition has been reduced by previous malarial infection is much more open to a secondary complicated infection—rheumatic, erysipelatous, diphtheretic—or whatever it may be. I think we must not, however, here forget that malaria is only a predisposing cause of the process. From the literature there would seem to be no doubt that there is some association between supra-orbital neuralgia and malarial fever, and yet in six years' experience in the hospital and in the out-patient department of this institution I have never seen a case of supra-orbital neuralgia which was associated with malaria. Of course I think, in connection with this, we must remember that a supra-orbital neuralgia which is benefited by quinin is not the same thing of necessity as a supra orbital neuralgia due to malaria.

I have seen one instance of rather severe supra-orbital neuralgia in an individual suffering with chronic malarial cachexia, where, however, there were ocular disturbances of another nature present, which might well have accounted for it. It was not relieved by quinin.

With regard to malarial hemoglobinurias, the parasites, which have been described in those instances, appear to correspond with *estivo autumnal* variety, though Pleba, who has recently written upon the subject, believes that they are a different organism. The weight of evidence is in favor of the former view.

There is no doubt that hematuria may occur in *estivo-autumnal* infections.

Very truly yours,

W. S. THAYER.

Thayer and Hewston in the course of their studies reach the conclusion that the tertian type of fever depends on the presence in the blood of a parasite that passes through its cycle of existence in about forty-eight hours. The segmentation of this organism at intervals of about forty-eight hours is always associated with a febrile paroxysm. Frequently owing to the presence of two sets of organism there are quotidian paroxysms. Quartan fever is rare in Baltimore. It depends upon a blood parasite that undergoes segmentation which is associated with a febrile paroxysm

every seventy-two hours. Double or triple quartan infections are possible. In regard to the *estivo autumnal* fever they concluded that it is due to the organism described by Marchafor and Selly but that the cycle of existence of this parasite has not yet been followed out in entirely satisfactory manner. It probably varies from twenty-four to forty-eight hours or more. The main seats of the infection with this organism are apparently the spleen, bone-marrow, and other internal organs. But few stages of the development of the parasite are ordinarily found in the peripheral circulation. This organism causes fevers that vary greatly in their manifestations. They may be quotidian or tertian intermittent fevers, or more commonly more or less continuous fever with irregular remissions.

The mode of infection of irregular forms of malaria is doubtless identical with those of the regular forms. I do not mean that its parasitic origin is identical but that the method of admission into the system is similar, namely by respiration, and by the alimentary canal through the drinking water; possibly by absorption through the skin.

"When a poison," says Bemiss, "generated outside of the human system obtains admission to it and produces deleterious effects, three questions naturally arise. What is the essential character and natural history of this noxious agent? How does it obtain access to the human system? What is the mode of action when received?" The first question with reference to the toxic poison is happily settled. We have fairly well defined notions as to the means of access. The morbid processes are manifest in paroxysms of fever, pains in the head, back and limbs. We can reorganize the parasite in its various stages of development in the blood. By culture these germs can be propagated and by inoculation into the system these parasites may be reproduced and with them the morbid phenomena induced by their existence. Yet our knowledge of zymotic poisons that float in the air infect swamps and meadow lands, and are conveyed by fogs, smoke and dust; noxious agents in the shape of bad water, impure vegetables, damp cellars, humid atmosphere,

is comparatively in its infancy. The material poison is conveyed into the system in numerous methods but ever and always in disguise. We can place no embargo upon its entrance into the system, and cannot quarantine the micro-organism except, that, knowing the habitat of the poison, we may improve our supply of drinking water, cut ditches and canals through swamp and meadow lands, shorten and straighten water courses, drain ponds and make the banks of streams erect, thus preventing pools of shallow water having no exit from remaining exposed to the direct rays of the sun. From these sources the poison is carried into the blood. At the head of the stream, so to say, we study the life and growth of these micro-organisms and only through their morbid manifestations, are we able to determine their presence. And with these pathological manifestations, goes as an accompaniment, dysentery of which Professor Aitken says: "It may be stated as a general proposition that there is no country where paludal fever exists in which dysentery is not an endemic and prevailing disease. In the East and West Indies and China, Ionian Islands, Gibraltar, Malta, the Canadas, Holland, coasts of Africa as well as in different parts of France, of the peninsulas of the Continent of America and of the Eastern part of Great Britain. The prevalence of intermittent or remittent fevers and of dysentery is notorious."

This connection is so intimate that a given number of persons being exposed to the action of paludal miasmata, as for example a boat's crew sent ashore in a tropical climate, the probabilities are that of the men returning on board part will be seized with dysentery, and part with remittent fever. Paludal fever and dysentery moreover are not only conjoined in locality but they often coexist, or precede or follow each other in the same individual, so that fever frequently ends in dysentery and the dysentery in remittent fever. This proof of the common nature of these diseases is corroborated by every writer of any celebrity and more especially by those who have detailed the diseases of our armies.

But dysentery also prevails where there is no other evidence of the presence of malaria. Woodward in "The

Medical and Surgical History of the Rebellion", says: "The opinion that the poison, whatever it be, which causes the intermittent and remittent fevers is capable of acting upon the intestines under certain circumstances and of producing diarrhea and dysentery has been expressed by many writers upon malaria and malarial fevers. Colin has recently attempted to prove that it is the use for drinking purposes of the water impregnated with decomposing organic matters which is so often found in marshy regions that causes the intestinal catarrh and dysenteries which occur in these districts, while the malarial fevers are the result of aerial emanation. This suggestion if true would afford an explanation of many facts especially in military experience which are more difficult of explanation."

Typho-malarial fever, so called, a term coined by Dr. Woodward during the late Rebellion as causing a form of dual fever, it is not in fact a specific disease. Dr. Woodward has admitted the disease was typhoid fever with malarial complications, and just here it may not be inopportune to say that the clinical thermometer has placed a great many cases of so called remittent fever where they properly belong, as true cases of typhoid fever. But in all cases of miasmatic poison, dysentery, diarrhea, typho-malarial fever, Roman fever, Naples fever, mountain fever, infantile remittent, Malta fever, continued remittent fever are all more prevalent in marsh districts. Mr. Colin devotes ninety pages of his work to the study of the influences which contribute to the development of malaria in the Roman Campagna. He says malaria is produced everywhere in the Roman Campagna and has no specially limited foci, marshy or otherwise. It draws its origin from the growing vegetation. Again he says: I think that far from seeking the cause of fever in the vegetation of marshes, it is rather to be sought in the inverse condition.

Indeed the poison is above all caused by the vegetative power of the soil when this power is not brought into action, or when it is not exhausted by a quantity of plants sufficient to absorb it. This is so true that in swamps themselves vegetations seems to be the condition most efficacious to reduce these noxious ex-

halations. This was also the opinion of George B. Wood. "There is reason to believe," he alleges, "that the miasm which produces such deleterious effect upon the animal system is capable of contributing to the nourishment of vegetables. This perhaps is one of the reasons why bilious fevers prevail, especially in autumn. The vegetation of spring and early summer is vigorous and adequate to the consumption of all the products of the organic decomposition that may be going on in the soil while that of autumn is inadequate. Among other products the miasmatic exhalations may be consumed but toward the close of the season when many plants have run their course and begun to decline they cease to appropriate this as well as other food if it do not remain in the soil." (Wood Practice Med., Vol. I, page 171.)

I quote from an article of much merit that was printed in the MEDICAL AND SURGICAL REPORTER, January, 1896, from the pen of J. B. Cowan, Tullahoma, Tenn.: "It has long been the generally accepted opinion of the profession that malarial fevers found their cause in the atmosphere about them and that the poison was received by inhalation or absorption by the surface of the body. That this may be partly true we shall not attempt in this paper to deny. We shall, however, assert as true that the malignant types of malarial fever, and in fact almost all forms of malarial fever, are indebted to the water we drink and not to atmospheric conditions for the etiological factor in the transmission or reception of the pathogenic material which produces malarial fever. It is not necessary here to enter upon a lengthy or detailed description of a true malarial habitat, or to discuss how malaria is produced, it is sufficient to say that water in saturation with solar heat are the two factors necessary to its production. Sand, clay, earth, wood and decaying vegetable organic matter may all become malarial producers when saturated with water subjected to sufficient solar heat. In contradistinction, allow me to say, that water in globule never produces malaria, but becomes an absorber and retainer of this pathogenic material and may become loaded with this poison almost to saturation. Trees,

wells, springs, creeks, and branches may become so loaded with this poison that a single glass of water may contain pathogenic material sufficient to produce a case of intermittent fever.

Without entering further into the manner of its formation, or the power of water in globule to absorb or retain this pathogenic factor, disease producer, we will endeavor to give proof that the water we drink is the great factor and principal source of malarial fever in all its forms, but especially in the malignant types. In 1855 I was practicing medicine at a small village that had at one time been considered the sickliest place in North Alabama, but for some years before my going there had become one of the healthiest. Learning of these facts I became inquisitive to know the reason or cause of the change.

"Near this village is a magnificent spring, very large and bold, affording sufficient water to run a grist-mill only a few hundred yards below. For fifty years or more citizens used water from this spring, and no one supposed that this clear, limpid, cold water carried disease and death in the form of malaria, producing in the citizens the most malignant type of fever. Just prior to this change from sickness to health I found that the citizens had supplied themselves with wells and cisterns—not to improve their health, but for convenience. Immediately following the change of water the place became healthy and the annual sickness disappeared. I learned that two miles due west from the spring there was a cave spring, and that small articles dropped into that cave spring would come out at the big spring at the village. Mr. J. lived near by and used water from this cave spring. Three-fourths of a mile due east of Mr. J. lived Mr. W.; he had also had a cave spring, from which he used water. Directly between Mr. J. and Mr. W. was a marsh—a pond in the winter and spring, but dried up in the summer and fall. I examined this marsh; the surface was dry and cracked from the solar heat; a few inches below the surface was mud, this furnishing a true malarial marsh or habitat 600 yards in length and by 400 yards in width. Mr. J. used water before it reached the marsh, Mr. W. after it had passed the

marsh. Here is the singular fact. Mr. J. never had malarial fever in his family, and Mr. W. never escaped a single year, and at the time I made this examination every member of his large family was having chills. I went to Mr. J.'s spring and dropped into it some shavings of wood, and then went to Mr. W.'s spring, and had not long to wait until here was the evidence that the springs were supplied by the same stream. I put in more shavings of wood and went to the big spring at the village, pouring out under a great bluff, and after a while here came the proof that the stream was the same. The problem was solved—the present healthful condition of the village was because they had changed their drinking water. I persuaded Mr. W. to get his drinking water from Mr. J.'s spring. He did so, and his family recovered and no new cases occurred."

Several similar cases are reported by Dr. Cowan, showing drinking water to be the source of malarial fevers.

With reference to the topography of the country generating paludal fevers, I wish to state that in 1876, at Chester, Pa., an effort was to reclaim or utilize the marsh land on the south side of the town along the Delaware River. The

soil was drained and the surface covering a great many acres was dried by the action of the sun's rays. After this the heavy sub-soil plough exposed to the sun, the roots of a heavy vegetable growth that was allowed to remain without any further effort to reclaim the land. During July, August, September, October and November 1876 there were hundreds of cases of pernicious fever in that vicinity. Most of the cases were severe and there were a number of deaths from infantile remittent fever, all occurring on the south side of the town. The citizens of the northern and western part of the town were free from any form of malarial fever.

The pathological manifestations as observed in the patient's of Dr. Cowan caused by impure drinking water, in the light of the researches of Thayer and Hewston was doubtless due to the æstivo autumnal variety of parasite. The same is perhaps true of the pernicious fevers of Chester caused by inhalations of the vapors from the upturned soil of the marsh lands, but what form of bacteria caused the infantile diseases, tonsillitis and dysentery, that were also prevalent in an endemic form? and in what form is each of the poisons taken into the system?

MYDRIASIS A NECESSITY TO ACCURATE REFRACTION.

GERTRUDE A. WALKER, M.D.,* PHILADELPHIA.

Young ophthalmologists are frequently surprised to find that certain important principles in their branch of medical work still rest upon debatable ground. The question of the necessity of using a mydriatic for purposes of refraction ought long ago to have been so thoroughly discussed and so intelligently and finally settled that no room for doubt could be left in the minds of ophthalmologists and of general physicians, nor, indeed, in those of opticians and the public. On the contrary, the subject is yet an open one. Ophthal-

mologists disagree among themselves in a matter of the utmost importance to the study and practice of refraction of the human eye, some maintaining that it is entirely unnecessary to subject a patient to the annoyance occasioned by the use of a mydriatic, others affirming that it is impossible to do the patient justice unless the ciliary muscle is set at rest. While such wide difference of opinion exists, it is not fair to blame either the optician or the public for adopting that point of view which is to them the more lucrative and (for the time being) the more comfortable.

There are a few stern facts from which

* Clinical Instructor in Ophthalmology at the Woman's Medical College of Pennsylvania.

no ophthalmologist of sense and fairness can appeal, such as:

1. An eye not under the influence of a mydriatic is capable of concealing absolutely a part of its hyperopia and astigmatism.

2. The ophthalmoscope is at best an unreliable instrument for refractive purposes.

3. Subjective tests are inaccurate, often misleading, and particularly so when the ciliary muscle is active.

If one admits the truth of these statements he cannot deny the necessity of mydriasis to accurate refraction; yet there are ophthalmologists who repudiate all three by declaring that they can accurately estimate refractive errors in eyes that are not physiologically at rest. They write articles which condemn the use of mydriatics, thereby promoting confidence in the incomplete and often very faulty work of opticians, and creating in the minds of the public in general a distrust of ophthalmological methods. Their reasons might easily be proved inadequate and even absurd by reference to such facts as the three above quoted, but, unfortunately, their unscientific ideas find credence with general physicians who have neither time nor inclination to examine the subject. It is convenient to believe that mydriasis is unnecessary, and many physicians send their eye cases to opticians for refraction believing that in this way they save their patients both time and money.

Compare the methods of the conscientious ophthalmologist with those of a would-be conscientious optician, and see which are the more reasonable and trustworthy.

Having noted the history of a typical case of ametropia in a young person, and having tested the vision for far and for near, the ophthalmologist examines the fundus of each eye. If he is skilled in refracting with the ophthalmoscope, he gains an approximate idea of the focal error in the eyes, but he can not be sure how much the patient is unconsciously concealing or to what extent he himself is accommodating. The day of prescribing glasses by the ophthalmoscope has passed. If the case presents no contra-indication to the use of a mydriatic, homatropin is instilled at the office, or a solution of hyoseyamin,

duboisin, or atropin is prescribed for use at home. The ciliary muscle having been paralyzed, the eye is no longer capable of concealing its refractive error. The purely objective test of skiascopy may now be employed, and if one uses this intelligently the correction can be ascertained to within .25 D. or (some claim) to within .12 D. The subjective test is next applied, and skilful use of the crossed cylinder will decide the matter within three minutes and within .12 D., provided the skiascopic test has been approximately accurate.¹

Prescribing the lenses to be worn now becomes a matter for judgment. Suppose case A.: A vigorous young man of thirty has 6 D. of hyperopia complicated by 1.50 D. of astigmatism with the rule. Ordinarily an ophthalmologist would not think of obliging the patient to wear his full correction.² All the astigmatism should be corrected and as much of the hyperopia as can be overcome without serious discomfort to the patient. Suppose case B.: A child of eight years is suffering from intense and almost constant headache. Mydriasis develops 2 D. of hyperopia in one meridian and 2.50 D. of myopia in the opposite meridian. So easily do children accept their full corrections, even when high cylinders are required, that the physician need not hesitate to prescribe in such a case the lens which overcomes all the focal error. Experience teaches the art of good prescription writing in ophthalmology as well as in general medicine. Under ordinary conditions the prescription is given on the day the test is made, and, in fact, it is desirable to have the patient obtain his glasses so soon as possible and wear them before the effect of the mydriatic has passed away.

Let case A seek the advice of an optician. The recital of symptoms suggests no particular form of ametropia to the optician's mind. Even the aid of the ophthalmoscope is not available. Disease, which may be accountable for impaired or fitful vision, is entirely

¹ All ophthalmologists do not employ the same methods for the estimation of focal error. The methods quoted are intended to be illustrative, not arbitrary.

² In using the term "full correction," we understand always that .25 D. has been subtracted from the result obtained under mydriasis at a distance of 4-6 meters.

overlooked. The case, if a purely refractive one, may be one of hyperopia or of myopia, for a defect of 6 D. of hyperopia with astigmatism would be likely to affect distant vision. The case may be one of astigmatism,—simple, compound hyperopic, compound myopic, mixed or irregular. How can the optician guess which? He tries lens after lens, relying wholly for his conclusions upon the impressions of his patient. If the optician is a fortunate guesser, he may conclude to give a low convex sphere combined with a low convex cylinder axis 90°. The patient uses this very incomplete correction with some temporary relief. But his headaches are still troublesome, and he feels that his glasses might be improved upon. He seeks the optician again, who either increases or diminishes the strength of the glasses at a venture, vaguely hoping he has done the right thing. Again there may be temporary and partial relief, but at last the patient goes in desperation to an ophthalmologist, whose methods under mydriasis reveal for the first time the total amount of hyperopia and astigmatism, and whose advice becomes trustworthy because it is not based upon a practice of guessing. The patient is inconvenienced by mydriasis for twenty-four hours, or even for a few days, but if he had originally sought the advice of an ophthalmologist he would have gained time, money and comfort.

The question of muscle-testing need not be touched upon in this paper, although in passing it may be noted that there are opticians who prescribe prisms without having obtained an accurate knowledge of the focal error in the eyes under their care.

Because the general physician does not appreciate the importance of having refraction work done scientifically, the practice of ophthalmologists is becoming more and more dependent upon the influence of opticians who now and then are forced to confess their limitations and to refer patients to offices for examination under mydriasis. Young ophthalmologists are subjected to a great deal of humiliation at the hands of opticians who solicit their office and clinic prescriptions. Commissions are offered, mutual benefits proposed, promises made. The optician argues

"from a business point of view," he stealthily leads the young doctor away from his ideals, assuring him that older and better men in the profession pay their office rent with what they receive from opticians. The situation contains a temptation to the average young physician. He may put aside once for all the thought of accepting a commission, but the proposition about sending prescriptions and receiving patients in return seems fair and right. He has come to realize that this is the surest means, after all, by which his practice can be made to grow. Alliance with the optician seems the most open way to success. He has long since given up the hope that his associates in the general profession will send him cases for refraction. They are playing into the hands of opticians, failing to realize that in so doing they give unsound advice to their patients and at the same time cast an indignity upon the profession.

There is at least one optician in Philadelphia who boasts openly and in print that he refracts *for physicians*, that his business is practically maintained by the profession. This man calls himself a "refractionist," and lures custom by promising to use no drops in the eyes. He searches among the archives of medicine for reports of cases of poisoning from the use of atropin, duboisin and cocain, cuts them from their context and prints them to serve his own purpose of deceiving the community. Our honorable medical literature is degraded to a use for which it was never designed. And every day this man pursues his practice in the heart of a city noted for medical preëminence! The reproach of it rests with the doctors who supply him with patients. He extorts prices which are beyond reason, but which seldom occasion dissatisfaction, for patients trust their physicians and believe their recommendation must be worthy of highest confidence. This man is bold, but only a little bolder than thousands of opticians everywhere who claim to be able to correct focal error in eyes whose real condition they are totally incapable of appreciating.

Until physicians realize the importance of intrusting their patients to skilful and conscientious ophthalmologists for refraction, we cannot expect to do a

great deal toward stamping out an evil that is not less than criminal.

Since without mydriasis refractive error cannot be accurately estimated, and since mydriasis should be induced only at the hands of a physician capa-

ble of appreciating the condition of the eye-ground, it follows that refraction is properly a department of medicine, and as such should not be suffered to pass from the hands of the physician to those of the layman.

THE ABUSE OF DIGITALIS.*

W. T. ENGLISH,† A.M., M.D., PITTSBURG, PENNSYLVANIA.

Digitalis is one of the most abused drugs of the *materia medica*. It appears that in the minds of a large number of the medical profession the pathological range of its application has no limitations. There is a very general want of agreement as to the conditions in which it is applicable, as well as to the amount that should be considered a proper dose. Notwithstanding accepted theories and well-established facts, which should control its exhibition, digitalis has been introduced to every malady in the catalogue of diseases, and is consequently made the subject of unwarrantable criticism and ever-increasing abuse.

There is no medicine that requires so much skill in its administration as digitalis, and no other has the boundaries of its utility more precisely defined. However, it is fair to claim that fifty per cent. of the digitalis prescribed is not in accordance with the accepted theories, and probably not more than one-fourth of the cases subjected to its influences are treated in harmony with strictly scientific methods.

It is erroneously assumed by some that the special effects of digitalis, like those of some other drugs, are arithmetically augmented in every direction in proportion to the amount administered. The small dose that will secure arterial tension is thus substituted by the larger dose that will diminish it. Under similar circumstances the small amounts that fail to produce diuresis

are alternated with the more liberal doses which enhance the diuretic action. The small doses that slow the heart's movements, and the larger doses which accelerate them are exhibited in the same case. To the observing man it is extremely rare to find a case in which large and often-repeated doses of the tincture are admissible. The conditions that indicate the utility of large doses are usually more amenable to the infusion.

Digitalis is too often regarded as a cure for "heart disease," rather than a remedy to be employed in a pathological condition that may arise in the course of heart maladies. In consequence of this vague notion of the drug it is employed from the mildest manifestations of nervous palpitation to the severest cardiac lesion, the variation being in the increased dosage and from one form of the drug to another. Now the tincture is prescribed, again the infusion, and anon the powdered leaves or the alkaloids, agreeably to the caprice of the prescriber, and regardless of the stage of the malady, the conditions, or the nature of the case. It is indeed rare to find the application of a certain form of the drug to the special condition to which it is most perfectly adapted in a remedial sense. The tincture, which should be employed for its tonic effect upon the heart, is often substituted by the infusion, which should be employed in conditions where diuresis is desirable. If the effects of both forms are needful to the relief of the conditions, a combination of the tincture with the infusion is rational and most commendable. However, the tincture is almost invari-

* Read before Pennsylvania State Medical Society, May, 1896.

† Professor of Physical Diagnosis in the Medical Department of the Western University of Pennsylvania, and Consultant in Chest Diseases in the South Side Hospital, Pittsburgh, Pa.

ably prescribed by some, and the infusion is equally popular with others. Some will maintain that the powdered leaves contain all the virtues and therefore should always be employed. The objection to the use of the leaves is that they are not readily assimilated and consequently the effects are postponed and some are lost.

Because it is claimed that in digitalis we have a drug which increases the force of the heart and contracts the vessels of the periphery—except those of the kidneys—it is employed indiscriminately as an ideal diuretic in Bright's disease, notwithstanding the contraindications observable in capillary tension and cordy pulse. Such irrational therapeutics can result in naught but harm.

There is a great diversity of opinion as to the period of time digitalis should be continued. It is often forgotten that although its effects are slow in their oncoming, they are also very deliberate in their leave-taking, and it is possible to demonstrate their presence after a period of one week, or even a fortnight, has elapsed after discontinuing the use of the drug. It seems almost foolhardy to use it in chronic nephritis when it is accompanied with high peripheral blood pressure, as it usually is, unless preceded by a short course of nitro-glycerin to relieve the peripheral tension.

The busy practitioner too often forgets that digitalis, in moderate doses, stimulates the musculo-motor portion of the heart and its contained ganglia, increases the activity of the inhibitory apparatus, and, possibly, causes contraction of the arterioles by an action on the vaso-motor centres in the cord. A fact that is not only forgotten but frequently ignored is that in normal conditions of the heart muscle there is want of cardiac stability, and it has the capacity to adjust itself to the demands made upon it. In those whose vocations force them into the extremes of bodily exertion, the heart becomes muscular in proportion to the demands. In response to temporary or protracted influences that perturb the heart and induce over-exercise without diminution of tonicity of the myocardium, as in functional or reflex disorders, the same result follows. Digitalis is often administered under

these circumstances to steady or quiet the cardiac tumult. In my humble opinion, this is a flagrant abuse of a good medicine and an unpardonable sin against the heart. It is but an added goad to an already overworked organ. Moreover, if the stomach, from whence the disturbing impulses often proceed, is already irritated, the presence of digitalis will augment the difficulties in geometric ratio by increasing nausea, heightening the cephalalgia, and other symptoms of gastric distress. Cardiac arrhythmia, of myopathic origin, or reflex, toxic, or nervous in its nature, cannot present a reasonable cause for employing digitalis. If it be exhibited in palpitation, due to neurotic conditions, there will be a possibility of converting the curable disorder into an incurable malady.

One of the most universal abuses of digitalis is the habit of prescribing it for a patient without advising him to abstain from exercise while under its influence. There are very few physicians who have not been disappointed by its results from the counteracting influence of exercise. All patients taking digitalis should live in perfect physical and mental quietude, as there is danger of adding to the perils of the diseased conditions demanding its use by omitting this precaution.

In congenital malformation of the heart the prospective long continuance or frequent repetition of the drug and the chronic protracted influence it must exert, should deter the thoughtful medical man from prescribing it. It will ultimately cause myocardial weariness and want of vigor.

In mitral regurgitation there is a time when the administration of digitalis achieves its greatest clinical good. The opportunities for its good action are often permitted to pass by on the one hand, and upon the other the drug is sometimes administered so prematurely that its most effective opportunities are lost. It must be remembered that in mitral regurgitation the two chambers of the heart are practically one, and increased vigor of the ventricle augments its suction power during diastole as well as its propulsive energy in systole. Through this dual service the engorged pulmonary circulation is unburdened

and the anemia in front is also relieved. This is the only condition in which it can secure such results.

Digitalis seldom becomes the sovereign remedy of derangement of the compensation in mitral stenosis it should, either because of undue haste in prescribing it, or on account of tardiness in its employment.

In aortic regurgitation it is sometimes employed in a thoughtless or careless manner. It is a dangerous medicine and often harmful in this valvular malady. If the diastole is increased and prolonged the period of regurgitation and its force are augmented and the difficulties multiply.

The only excuse for prescribing it in aortic stenosis is to give vigor to the myocardium when the tendency to dilatation is announced. If it slows the action of the heart notably it may add to the valvular systole or occasion tetanic contraction.

It is deplorable to see a well-informed

physician employing it in conditions of compensation. Many a case of benign hypertrophy has thus been goaded into myocardial weariness and weakness that disabled it from keeping up its work. In the absence of dropsy in all cases where the urine is voided freely there is little, if any, call for digitalis. Even under the circumstances of oncoming myocardial weakness and dropsy, the best results are lost by failing to aid the action of the drug by diminishing the work of the heart and by utilizing all the means for relieving the limitations placed upon the circulatory apparatus. This may be accomplished by purgatives, paracentesis, puncture of edematous limbs, and at times by local or general blood-letting.

To use digitalis in all forms or conditions of heart disease is an abuse of one of our best remedies, that only differs in degree from the disposition that appears among some of the profession to make of it a cure-all.

OBSCURER TRAUMATIC LESIONS OF THE ENCEPHALON.*

WALTER H. PARCELS, LEWISTOWN, PA.

Injuries of the head require more skill on the part of the surgeon than do injuries located in any other part of the body. Lesions of a surgical nature connected with the encephalon are always obscure. Difficulty in diagnosis is the first lion in the way that confronts the surgeon when called to such a case.

If there is a wound of the scalp, accompanied by fracture of the skull at almost any point save the base, a prompt and reasonably accurate diagnosis is entirely possible; but even then a grave doubt exists frequently as to how much injury the encephalon may have sustained. The prognosis should always be guarded. If, however, the symptoms lead us to suspect a fracture at the base with its accompanying injury to the brain, a prompt diagnosis is utterly impossible. The details of a case I attended

last November clearly illustrate this last statement. I encountered a crowd of excited people in the roadway surrounding a twelve-year-old boy. Possibly fifteen minutes before he had been thrown from a horse going at full gallop. Many had seen the fall but none could tell the manner in which the boy had struck the ground. A hasty examination showed extensive bruises on both legs, the left ear full of blood and the hair on the left side of the head saturated with blood. The boy was comatose. In a few minutes he vomited profusely but rallied only enough to moan occasionally while I was taking him to his home, a half-mile distant, where I made a careful examination. Removing the matted hair I found a scalp wound the size of a silver quarter. The skull was smooth, periosteum not injured at this point or any other place that my fingers could reach. On removing the blood from the

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ear the supply was slowly reproduced. The whole amount of bleeding from the ear was probably a dram or two. The boy vomited again, moaned frequently, rolled his head from side to side when I touched the wound and swore when I applied the sutures, but gave no heed when spoken to.

The pulse was about 110 and feeble; the extremities were cold, and in short there were well-marked symptoms of shock.

I diagnosed concussion of brain with a possible fracture at base of the skull and more or less injury to the encephalon. Prognosis doubtful. Dressed the wound antiseptically, applied warmth to body, etc., and left him for the night.

The following morning the case was about the same, there being no further signs of returning consciousness. During the next twenty-four hours he lost a little. The pulse was getting very slow, sixty to seventy per minute, temperature slightly subnormal. During the next week there was no return of consciousness. Paralysis of left arm and leg was indicated by movements of the boy's body, external squint of left eye-ball, and drooping of right eye-lid. The pulse was frequently down to fifty per minute, temperature generally below normal, respiration very slow and marked by frequent cessations, indicating the near approach of death.

He would swallow when anything was placed in his mouth so he was given milk and a combination of potassium iodid, potassium bromid and digitalis and an occasional suppository was used.

For the first time on the ninth day he made an effort to protrude the tongue when I asked him to. This was apparently the first he had heeded anything said to him. The Rip Van Winkle sleep now began to leave him and he was soon able to talk. At the end of four weeks he could walk very well and seemed all right save that he was weak and the left foot seemed still a trifle paralyzed. Three months later the boy was entirely well but still had a tendency to diplopia.

What was the correct diagnosis in the case? Was there a fracture of the base of the skull? Was the encephalon injured? If so, how much? Was there a better plan of treatment than mine?

I shall always incline to the opinion that the skull was fractured at the base, that there were small clots located at different intra-cranial points, that the meninges were more or less injured and that the recovery was exceptional. I shall regard head symptoms with much concern should the boy in future be attacked with any serious illness.

CASE II. More than twenty years ago a young man while at work received what his fellow-workmen thought a very slight blow over right ear. He continued his work for an hour or so and then, feeling slightly nauseated, went home, where his mother, addicted herself to the opium habit, gave him a dose of morphine, probably a third of a grain, but it might have been more.

I saw him two and a half hours after the receipt of the injury. He was then profoundly comatose. Cold water dashed into his face finally elicited the word: "Don't."

I examined his head carefully, but found no sign of fracture of skull. There was, however, a contusion (slight) just above right ear. The few movements of the body showed complete paralysis of left side. The pupils were contracted.

Diagnosis, blood clot at seat of injury on right side, brain greatly compressed at this point. Was there morphine poisoning? Well, I simply didn't know, but didn't believe it existed. However, I gave strong coffee, placed the patient in a comfortable position and awaited results. They came in just thirteen hours after receipt of the injury and came on the wings of the silent messenger, whose approach we all await with fear and trembling.

A post-mortem was held the following day. There was no fracture of the skull, but a large clot, possibly six ounces or more, was found at the seat of injury. The skull was exceedingly thin, and some of the blood vessels of the pia mater were ruptured. Was a correct ante-mortem diagnosis possible in this case? Was there anything more I should have done in the way of treatment?

CASE III.—Some ten years ago a three-year-old boy fell from a second story window upon a wooden step. He

was first seen by another physician. The case came into my hands, as the family physician, six hours later. The boy had remained in a comatose condition all the time. There was a well-marked contusion directly in the centre of the forehead. There seemed to be no injury anywhere else. Was the skull fractured at this point? What damage had the encephalon sustained? Was this coma due to concussion? The boy surely was conscious of pain, for he tried to roll the head beyond my reach when I touched the injury.

The other physician assured me that the boy was less sensitive to the touch immediately after the receipt of the injury, and a careful examination then showed that the skull was not fractured. I accepted his diagnosis of severe concussion of the brain.

There was probably no extravasation of blood, for there plainly was no paralysis, the boy being able to move all his extremities. I hoped the brain tissue was not injured. I treated the case on the expectant plan after having given a very guarded prognosis. The eyes soon became closed a result of the swelling, the patient did not rally, and about three days after the injury had a severe chill. He seemed to shiver, and had on the arms that well-known symptom called "goose-skin." The temperature immediately became very high. At this point I think acute meningitis supervened. The patient gradually grew worse and died about three days later.

Was there meningitis in this case? Was the skull fractured and a spicule of bone driven into the brain? I never felt that I quite did my full duty by accepting the diagnosis given by another, when I was the family physician. I think I should have etherized, and, if need be, cut down and carefully examined the bone for fracture. The final result though would probably have been the same.

These three cases sufficiently illustrate the points I wished to cover in this short paper.

I was about to give what I believe to be the recognized surgery of to-day in cases of obscure traumatic lesions of the encephalon, but what is the use? The treatment to-morrow may be different

from the treatment of to-day. These *fin de siècle* days are halcyon days for the surgeon. The discoverer with flaming torch goes boldly forth to startle the world, while the surgeon with restful mein leans back in his easy office-chair and awaits the day when he can say to his assistant: "John, please get out the X-rays and take a cathodic photograph of that patient's brain, so that we may know whether we shall need the trephine and forceps to remove a spicula of bone; or the trephine and section pump to remove an intracranial blood-clot."

That tobacco has a bad effect upon the sight is now definitely conceded, and a distinct disease of the eye is attributed to its immoderate use. Many cases in which complete loss of sight has occurred, and which were formerly regarded as hopeless, are now known to be curable by making the patient abstain from tobacco. These patients almost invariably at first have color blindness, taking red to be brown or black, and green to be light blue or orange. In nearly every case, the pupils are much contracted, in some cases to such an extent that the patient is unable to move about without assistance. One such man admitted that he had usually smoked from twenty to thirty cigars a day. (*Nursing Record*.) He consented to give up smoking altogether, and his sight was fully restored in three and a half months. It has been found that chewing is much worse than smoking in its effect upon the eyesight, probably for the simple reason that more of the poison is thereby absorbed. The condition found in the eye in the early stages is that of extreme congestion only; but this, unless remedied at once, leads to gradually increasing disease of the optic nerve, and then, of course, blindness is absolute and beyond remedy. It is, therefore, evident that, to be of any value, the treatment of disease of the eye due to excessive smoking must be immediate, or it will probably be useless.

Phthisis and pneumonia are more frequent and fatal among men than among women, while cancer and apoplexy kill more women than men.—*Med. Age*.

BILIARY CALCULUS AND ITS DIAGNOSIS.

P. J. FARNSWORTH, A.M., M.D., CLINTON, IOWA.

Looking over a recent article in a medical journal on "Cholelithiasis and Jaundice," I am reminded of a case that came under my observation a few years ago.

Being present in a public hall where some discussion was going on and some personalities were used, I saw a large, well-formed man fall to the floor as if in a fit. I immediately went to his assistance and found him writhing with the most intense pain in the hypochondriacal region, and almost pulseless. He soon was in a profuse perspiration. Having my syringe with me I gave him an injection of a fourth grain of morphine and then allowed him to inhale some ether that I happened to have with me. He soon rallied, and was assisted to his home, where, for several hours, vomiting persisted. After that he recovered and was out the next day.

In about two weeks I was called to his house to find him in something of the same form of a paroxysm. I made as thorough an examination as possible for the cause. The attack came on a little before dinner. Nothing unusual had been eaten; the bowels had moved in the morning. The heart was beating in a tumultuous manner, but gave no evidence of enlargement or valvular disease. Nausea and vomiting came on and the hypodermic injection was the only resort. Nausea persisted during the following day. His wife said that he had had such attacks for a year or more, usually brought on by some mental excitement, the first one by a quarrel occurring in the foundry where he was employed.

He was a large, well-formed man, of middle age, who had never suffered from ill-health, but was rather inclined to be nervous. His business was that of superintendent in the pattern shop of a foundry.

I diagnosed the case to be neuralgia of the stomach, occasioned by some irritating substance in that organ. He seldom or never used alcoholic beverages

and never used tobacco. An attack came on after a Sunday walk; another when he attempted to set up the parlor stove. He was chosen police magistrate and had had several paroxysms while conducting court, always referable to some personal passages with attorneys or prisoners. After holding the office for some time, he was rather summarily dismissed from it, and had an attack on the street when he had started for home.

He located the pain at the edge of the ribs on the right side. It lasted for four or five hours, only dulled by the morphine, and was followed by considerable jaundice. This passed off in a few days, but not long after he consulted me for palpitation and irregularity of the heart's action. I attributed this to dyspepsia, and gave him a tonic, which relieved him. He continued his business, avoiding excitement of every kind as much as possible. He had still occasional attacks, and I had come to regard them as of nervous character, and gave him bromides, which gave some relief. After a day of more than usual fatigue a paroxysm came on that was followed by fever and symptoms of hepatitis. Obstinate vomiting followed. Food would be retained for a time and then be thrown up partially digested. There was much pain in the right hypochondriacal region and between the shoulder blades. The urine became heavily loaded with bile. The bowels responded to a mercurial purgative. This condition continued for two or three months. Jaundice came on in a very decided manner. Phlebitis set in in the left leg; the inflammation of the liver was not marked, neither was there at any time a high fever.

Death finally came from exhaustion. A post-mortem examination was obtained twelve hours after death. The lungs were sound, the heart healthy and of normal size; the stomach was enormously enlarged, its walls very thin; the pyloric orifice much thickened but

open. The liver was enlarged and softened in places, showing a stellate structure of white and red of a half inch in diameter. The gall-bladder was a lump of two inches in length and an inch in diameter; a sac filled as tightly as it could be packed with gall-stones in the form of dice, and some of them as large as those usually played with, smaller at the ends and rounded to conform to the shape of the gall-bladder. The kidneys were large and waxy. The urine had been albuminous during the last month of life. The skin and all the tissues were of the deepest orange hue.

He died at the age of sixty-eight, and had been troubled in this manner for about ten years. The curious old notion of anger stirring up the bile seemed to have a confirmation in this case. It is probable that at first there might have been a passage, or an attempted one, of calculi, but afterwards the spasms must have been produced by the presence of so large a number. Cholelithotomy would have been the proper treatment,

but there were no certain symptoms to indicate the necessity for this until the last illness, and then the history would hardly confirm the diagnosis.

In numerous post-mortems that I have witnessed, gall-stones were found, sometimes large ones, that during life had given no symptoms of their presence. Probably it is the smaller ones that give the most trouble by entering the duct. Perhaps at some time we may discover a remedy that will dissolve the stones in the gall-bladder or prevent their formation. Sweet oil has long been a popular remedy. Chloroform in small doses, given for some time, has claims in its favor. Simple habits and a vegetable diet acts as a corrective. From various publications which have lately appeared, cholelithotomy is the next fad for the enterprising surgeon, which may rival the operation for appendicitis. The liver is to be invaded with the certainty of finding the calculi that are the origin of ills as many as are caused by foreign bodies in the appendix.

COMMUNICATIONS.

THE PRISMATIC PERIMETER.*

JOSEPH E. WILLETTS, M.D.,† PITTSBURG, PA.

The importance of determining the visual acuity of the peripheral portions of the retina is fully appreciated by the oculist. The visual field may be defective with respect to all or any of the senses of form, color or light. As the nature of such defects often constitutes important data upon which to base a diagnosis and prognosis, of the accurate testing of the visual fields should have an important place in the subjective examination of the eye. Peripheral vision may be defective in continuity or in acuity; often there is a defect in both

respects at the same time. But besides regular interruptions in the continuity of the field of vision, there may be irregular breaches in continuity, *i. e.*, more or less blind portions surrounded by normal or relatively normal portions of the field, to which the name *Scotomata* has been given. There is scarcely any intra-ocular disease which is not accompanied by changes in the visual field. Thus, in optic atrophy we have a concentric contraction of the form and color fields. In glaucoma the contraction of the field is quite characteristic of the disease. First the inner and then the upper and lower portions of the field begin to contract, and this contraction gradually extends toward the centre of

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† Late Chemical Assistant to Dr. Knapp, New York Executive Ophthalmic Surgeon to the Eye and Ear Hospital, of Pittsburg, Pa.

the field. In retinitis pigmentosa there is also a contraction of the field, which is most characteristic of the disease. Here we find concentric limitation of the field, which involves all the peripheral portions equally, often leaving comparatively good central vision, even when the disease is well advanced. In detachment of the retina the perimeter aids us not only in determining the extent of the detachment, but also in the prognosis. In the various forms of hemianopsia and toxic amblyopia, due to tobacco and alcohol, the perimeter is valuable; for by it we are enabled to discern a central scotoma for colors, which is pathognomonic of these affections.

Hirschberg believes that a differential diagnosis between tobacco-amblyopia and alcohol-amblyopia can be established by the location and form of the scotoma. In alcohol-amblyopia the scotoma is "peri-central," *i. e.*, it lies about the macula; whereas in the tobacco-amblyopia it is "para-central," being more distinctly oval in shape and extending from the macula to the blind spot. The various perimeters are all one and the same thing—that is, modifications of the same principle. It consists of an arc and chin rest, and compels the patient, as well as the operator, to assume an unnatural, restrained position for a length of time varying according to the intelligence of the patient or the perception of the operator, and gives results which look exceedingly scientific and add greatly to the appearance, if not to the worth of reprints. The patient is seated in front with the chin in the rest provided for it, and, one eye being covered, he is directed to gaze steadfastly at the stationary disc which should be in a direct median line with the eye of the patient; but it is not in this instrument. The top of this projection, which acts as a director, is on a median line with the stationary disc, which seemingly is but a small matter, but in reality is one of material importance. As it is now, the patient is forced to rest the margin of the lower lid against it, which sets up a blepharospasm, causing a constant changing of position and a restriction of the interior field. If the chin-rest is raised, then the antero-posterior axis of the eye is

above that of the disc, which adds to the unreliability of the results.

To be scientifically consistent with the laws of physiological optics, the field of vision should only be taken after the error of refraction has been corrected. Just what part high degrees of hypermetropic astigmatism and other forms of ametropia would play in the conjugate focus or deviation of rays, I cannot say, but think it capable of mathematical demonstration. Considering that the field of vision is always taken without the error of refraction being corrected, and considering the fact that it is impossible to take the field of vision with this instrument after the error has been corrected, on account of the rim of the glass interfering with the vision, together with the fact that the result of the examination is modified or dependent on the personal equation of the patient, whose position and surrounding are not such to facilitate quick perception, the practicability of this instrument becomes questionable. What can we expect of this instrument with un instructed patients, where the operator must rely on the personal equation of the patient, and his own ability, not only to approximate the degree on the unmarked portion of the perimeter, but also to approximate how much of the field of vision is cut off by an unusually high nasal bridge, a prominent brow, or a malar bone? How is this approximation of restricted field from a prominent feature made? Is it computed by figures? Is there a known amount of restriction of the visual field for each mm. of prominence of individual features above normal? No; the result is accepted regardless of personal equation, the physiognomy, or the position of the patient, and an approximate allowance made for the numerous inaccuracies of which the position of the patient is not a minor one by any means, especially in those cases of a neurotic type—cases of hysteria in which we are called upon to take the field of vision, and where the patient does not remain in the proper position. In such cases the forehead may be inclined forward, with the eye close to the projection in a straight line with the stationary disc, thus giving the field a wide scope in one meridian; while in the next meridian the chin will

be thrust forward, and the eye drawn backward, and the inferior field greatly restricted, to say nothing of the patient's inability to control the tendency to look at the moving disc instead of the stationary one, which also materially adds to the unreliability of the results obtained.

Disregarding these trifling objections, it has other disqualifications which practically removes its only advantage, that of chart producing, by which we may keep a record and reproduce it if desired, and I feel free to say that these are about the only cases in which it is used. For office practice the field is taken by having the patient fix his eye on that of the operator, and bringing the finger in from the periphery in the various meridians, and is just as accurate, and just as scientific, and can be accomplished in the time necessary to get the perimeter ready; but there are no means by which the result can be expressed. The perimeter gives a method of expression, but an imperfect one, and in proof of this statement, I ask any one to show me ten fields of vision, any two alike, taken from the same patient, under any condition. This extreme variation of result is dependent on the objections named and also on conditions. The most important essential requisite for the accurate testing of peripheral retinal functions is light; not reflected light, but a certain light stimuli which must be accepted and used in all perimetric examinations, in which the result is to be reported, otherwise the chart reproduced, conveys no meaning, and is valueless; for if the same field be taken by another observer, a different result would be obtained, and if taken by a third observer, still another result would be obtained, dependent not on the operator but the amount of light obtainable in his office and the cleanliness of his discs. Taking into consideration the different theories of the color senses as to whether they be true or not, no color can be recognized in a dark room, and the restricted color field as shown to-day, is not so much dependent, to my mind, on the retina not being able to perceive the various colors, on account of the colors themselves, as it is on the degree of luminosity. A bit of card board of any

color run in from the periphery is recognized by the patient, not so much by the action that the individual color plays on the retina, as the rays of light reflected from it. The darker the color, the more rays absorbed, and the restriction of the field for white even, as shown in hysteria, may be dependent on a dirty or mottled peripheral disc, rather than retinal inertia. While the contraction on the nasal side is tacitly understood to be dependent on the physiognomy Fuch says that the anterior border of the sensitive portion of the retina, extends further forward on the nasal side than on the temporal, in comparison as 65° is to 90° . This is not so. Both sides are equal there being no difference in the retina of either side, it being histologically the same, and this is one of the many errors which have grown from the results of the present method of perimetric observation. To the physiognomy most of the blame can be laid for the contraction of the nasal side, and the balance of the blame to that instrument, based on hypothesis alone, the perimeter, an instrument devised for the exploration of the field of vision, which, instead of endeavoring to enlarge the nasal contraction caused by the physiognomy, further increases it by bringing its objective point inside the point of infinity to 15 in, when all rays that enter the eye must enter as divergent rays, thereby causing a restriction of the whole field to the extent of $0.57'$ of the nasal as well as the temporal side. But not satisfied with this, it further constricts the nasal field $6^\circ 38'$ by the convergence dependent on the compulsory accommodation for so near a point and adds the $6^\circ 38'$ subtracted from the nasal to the temporal field, which constitutes another error. This is easily demonstrated by holding the finger 15 inches from the face and then fixing the eye on a distance (20 feet) beyond it. When the distance between the two fingers will represent the angle, in other words, any instrument that shows a contraction of the normal field of vision for the form, or color sense, is wrong, for no such contraction exists. Granting these objections to be true, which they are, I say without any hesitancy, that the perimeter is not only unscientific and impracticable; that it is not only im-

probable, but impossible, its total being nothing but approximated guess work, its results being not only valueless but meaningless as well.

Recognizing that the unsatisfactory statements of the patient materially influence the result, that there must be an approximate allowance made in each case for the personal equation and for the constantly varying physiognomy, and that the time and inconvenience necessary for a conscientious examination of the visual field are decided objections, I endeavored to construct, or combine a number of prisms or cones, which would transmit or refract rays of light to that part of the retina corresponding to the degrees in the present perimetrical chart. To make the result correspond as nearly as possible to the present accepted ellipsoid, color and form field, as the perimeter gives it to us, it would be necessary to have prisms of different strengths combined in a whole. On this principle I had an octagon ground. Recognizing later that this shape would be expensive and the results inaccurate, I constructed a cone-shaped hexagon, having all prisms of the same strength. Thus, a cone or cone-shaped hexagon with its sides cut at an angle $73^\circ 40'$ made of flint glass with an index refraction of 1.584, will throw six lights at the same time on the retina at the angle corresponding to 70° as taken by the perimeter. That this is capable of mathematical demonstration the following formula show, for which I am indebted to Prof. James E. Keeler, of the Allegheny Observatory of that city.

Formula for a Prism in the Position of Minimum Deviation.

Let n = index of refraction }
 A = angle of prism }
 d = min. deviation }

To find d , $-\sin \frac{1}{2}(A+d) = n \sin \frac{1}{2} A$.

To find A , $-\cot \frac{1}{2} A = \frac{n - \cos \frac{1}{2} d}{\sin \frac{1}{2} d}$

Formula for a Prism when the Incident Ray is Perpendicular to the Second Face of the Prism.

Let n = index of refraction }
 A = angle of prism }
 d = deviation }

Given A to find d .

$$\begin{cases} \sin r = \frac{\sin A}{n} \\ r' = A - r \\ \sin d = n \sin r' \end{cases}$$

Example:— $n = 1.584$, $A = 75^\circ$, to find d

$\log \sin A$ 9.9849
 $\log n$ 0.1998

$\log \sin r$ 9.7851, $r = 37^\circ 34'$

$r' = 75^\circ - 37^\circ 34' = 37^\circ 26'$

$\log \sin r'$ 9.7883
 $\log n$ 0.1998

$\log \sin d$ 9.9836, $d = 74^\circ 21'$

Example:— $n = 1.584$, $d = 75^\circ$, to find A

$\log \sin d$ 9.9849
 $\log n$ 0.1998

$\sin r'$ 9.7851, $r' = 37^\circ 34'$

$n = 1.5840$

$\text{Nat} \cos r'$ 0.7926

$n - \cos r' = 0.7914$, $-\log 0.7914 = 9.8984$
 $\log \sin r' = 9.7851$

$r = 37^\circ 37'$ $\log \cot r = 0.1133$
 $A = 37^\circ A34' + 37^\circ 37' = 75^\circ 11'$

The highest degree prism used in the prismatic perimeter is one of $73^\circ 40'$ which under all conditions, regardless of the physiognomy, transmits images to 70 degrees on the retina, not counting the distortion of the image, which is equal to five degrees more, so if a patient see six lights with this combination of prisms after a slight rotation of the hexagon, or without rotation of the cone, it is *prima facie* evidence that not only the field of vision is normal at the angle of 75° for all meridians, but also that the color sense for red is normal at that angle. A row of incandescent lights, green, blue, yellow, or any of the complement colors, can be successively turned on, and the field and color sense for that angle established decisively in an instant. Plates in text-books showing 55° to 60° to be the normal for white of the superior, inferior and temporal portions of the retina are misleading, and certainly are not any more correct than the plates showing restricted color field.

The prismatic perimeter has demonstrated satisfactorily that there is no

restriction of the normal field for any color or any object. The present restriction is not due to the inability of the retina to receive impressions at its periphery, but entirely to outside influence—the physiognomy, and the crude instrument by which the field is taken. All colors are recognizable with the prismatic perimeter at the periphery of the field, as well as inside of the color field, as at present recognized. That it is not so plainly seen at the periphery is partially due to the fact that to deflect an image to the 70° angle on the retina the rays cannot pass through the angle of minimum deviation of the prism and thus transmit a clear image of the object; but instead a distorted one is transmitted to the retina. If it were possible to throw an image which was not distorted on the periphery this would be very distinctively seen. That this is a fact is proven by directing the visual axis to one of the false images on the periphery, which necessarily causes it to fall on the macula. If its distinctness on the periphery were due to the insensibility of the retina, it should be distinctly seen when focused on the macula, which it is not, showing that this indistinctness is due to distortion alone. If the 73° 40' hexagon, or a cone of the same degree be placed before the patient's eye, the other being covered, and he can see no light, there is a concentric contraction inside of the 70° angle which indicates optic atrophy or retinitis pigmentosa; while in glaucoma, corresponding to the nasal contraction, there will be but three lights, or a broken light with the cone. If one be missing, some localized lesion, and if the color be not recognized, the pathological condition is really understood. The lights are thrown on the retina in the shape of a hexagon, with a band of colored lights connecting each individual light at different degrees of deviation, according to the strength of the prism or of the cone used.

The light can be thrown on the retina in a practical way at successive angles of 70°, 60°, 50°, 40°, 30°, 20° and 10° is demonstrated by the formula given.

The following shows the angles of the prisms required to give the necessary deviation when made from flint glass, with an index refraction of 1.584 :—

Given deviation.*

Angle of prism required.†

*	70°	60°	50°	40°	30°	20°	10°
†	73°40'	69°21'	63°13'	55°8'	44°50'	32°2'	16°49'

The error decreases in ratio to the strength of the prism.

The hexagon has the advantage over the cone because it tells us not only of the presence of a lesion, but also of its extent. For example, in detached retina, after putting on the hexagon, one light is found missing. The hexagon should be slightly rotated until the patient sees the missing light, and the point of its reappearance noted as well as the site of the disappearance of the one following it, which gives us positive evidence of the extent of the detachment for future reference.

As is well known, the objection to the use of high-degree prisms in ocular work has heretofore been the prismatic spectrum. This spectrum, which has been previously an objection, is, in the prismatic perimeter, used to an advantage; for, in the higher degree, it is sufficiently pronounced to be used as a color test, as it has all the necessary colors, and I have demonstrated in the clinic of the Eye and Ear Hospital that the individual colors are recognized by the patient.

It is scarcely necessary to dilate on its efficiency as a confusion test in stimulated blindness. If a patient be made to see six lights, the angle of which may be changed at the will of the operator, he naturally will not know what to expect in subsequent examinations.

The prisms must be accurately ground, all the six faces of the hexagon being exactly alike and of the same angle, so that we may have undisputed facts from which we can definitely express results found for the report of cases. In the higher degree prisms, the rays striking the apex of the prisms are lost, being deflected out of the prisms before they reach the cornea, so that during the examination, when the prism is held close to the eye, the patient sees a semi-opaque circle or diffusion of dispersed and reflected rays making their exit, which, contrary to the natural supposition that it would annoy and confuse the patient, is really a valuable adjunct instead of an objection; for it is these

rays that exclude all other objects, such as furniture, hangings, etc., which have a lesser light stimulus than the objective light used in the examination, thus cutting off many multiple objects that would only tend to detract the patient, much the same as the moving disc on the old perimeter does, and make the practical application of the prismatic perimeter *nil*.

The prisms are cemented to a piece of plain glass and enclosed in a brass tube of a dead black finish, which has been done for the protection of the prism, for convenience of handling, and to overcome the blepharospasm caused by the closeness of the prism to the eye. The prism is set in about an eighth of an inch and the rim of the tube holds the lids open. The tube is marked on the end containing the prism, with degrees similar to the trial frame, so that when it is placed to the patient's eye, with the 90° mark on the tube corresponding to the vertical meridian of the eye, then we know exactly what position the lights are in on the retina, and if one be missing we can tell at once what meridian of the field is affected, and this may be expressed by figures instead of unreliable charts.

The objective light is inside the point of infinity, when the higher degree hexagon is used, which causes an error of 0.57' which is overcome by placing a convex lens in the other end of the tube, which causes the rays to become parallel and also protects the prism from dust, etc.

The problem that was of paramount importance in the conception and construction of this instrument, was not only the securing of a proper combination of prisms with the proper powers of deviation, but the practical application of the principle. The possibility that a thing might be otherwise is no proof whatever that it is not so. The test of a theory is, first, that it shall not be directly contradicted by any facts, and secondly, that the preponderance of probabilities in its favor shall be sufficiently great. But so long as there remain any negative evidence it remains a theory. That these rays do strike the retina at the angle declared has been proven by mathematical deduction, with no negative results, and consequently it

is a produced fact, of practical application, and as such it is presented. The instrument is manufactured by the Wallace Optical Company, of this city.

To recapitulate; the objections to the old perimeter are,

First, the high projection which alters the whole field.

Second, that the objective disc being inside of infinity causes a contraction of the whole field of 0.57'.

Third, that through the compulsory convergence dependent on the accommodation for so near a point there is constituted an error of 21° 21'.

Fourth, restrained position of patient.

Fifth, personal equation of patient.

Sixth, time required for examination.

Seventh, uncertain or unknown light stimuli used, which in itself invalidates the result.

Eighth, the results are of no scientific value, being devoid of meaning.

The advantages of the Prismatic Perimeter are: *First*, a standard light stimuli for all observers.

Second, that the form and color sense can be taken at one time.

Third, that the whole field can be taken in a few minutes.

Fourth, that the results are absolutely reliable and indisputable, being demonstrable mathematically, and independent of the physiognomy.

Fifth, that the findings of any observer can be quickly and accurately recorded in a manner at once intelligent to any one familiar with this method of taking the fields.

Sixth, it does not depend on reflected light of varying intensity.

The Passing of the Ovary.

"The times have changed," the ovary said;
"I am hopelessly out of date.
I have dropped from out the zenith of fame,
I have nothing left but a blasted name,
For Battey is dead, and Keith is dead,
And what has become of Tait?"

My place in the alcohol jar is ta'en
By a blind, malicious worm.
It is hard for a lady of parts to be cut
By a mere cedilla under a gut!
But I'm out of the fashion and on the wane,
And you now triumphantly squirm.
So, Appendix, adieu,
It is time I withdrew—
You may hear from me again."

—Southern Medical Record.

CURRENT LITERATURE CONDENSED.**Limitations of the Standard of Modern Educational Requirements as Determined by State Examining Boards.**

Eighteen years of continuous labor as a teacher in medical colleges, has served to make me familiar with some things concerning medical education which can only be gleaned by experience. Only those who have been thrown face to face with the many issues and problems that this subject presents, can imagine the many difficulties that are continually presenting, and how difficult they are to overcome. The medical profession of America has much to be proud of in its rapid advance in this matter. Within the memory of many here the successful doctor was not graded by a collegiate, or medical education, but rather by his power of adaptability to the masses, without reference to education, or I might say ability at all. Armed with the lancet, purgative, emetic and an anodyne, he was accounted greatest who could bleed, purge, vomit, or put to sleep the quickest.

If the memory of those present can turn back to these crude days, and efforts in medicine, it will not require a great flight of memory to take them back to the days when to procure a diploma from a reputable medical college, was a thing of ease, and of but few days of trouble. No portion of the country either can be exempted in this declaration. The North and East, vied with the West and South, as to how little real medical training was necessary to make a full-fledged doctor or graduate. Times have changed, most woefully changed—for the student. Why a decade ago, nine months, and not full months either, seemed quite sufficient to educate one to the simple task of practicing medicine, at least by some colleges. There was a commercial aspect to medical teaching in those days, born and bred, of opposition and contention. Quantity and not quality was the rule. Even medical men became unscrupulous; the cut-rate system was indulged in, and to

such an extent that students were actually inveigled into medical colleges under misapprehension and misrepresentation. At last, however, the reaction came, and medical teachers realized that such conduct was reprehensible, and degraded the honored profession to which they belonged and that the wholesale turning out of illiterate students to practice medicine was a calamity which threatened the health and lives of the people, and a halt was called.

It is suggested that the requirements be "A preliminary education equal to a high-school course, four years medical, collegiate training, and a separate State examination for license after graduation." Every teacher of medicine will bear me out in the assertion that many times the student of two years' attendance in a medical college can outstrip the four-year man with ease to the finish. The country-born lad, who has had the advantage only of a log-cabin education, will often win the honors in his class over his city cousin, who has received a collegiate education. This can be said of all professions and avocations. Who is to judge whether the applicant has an education equal to a high-school course? I suppose this duty would devolve upon the dean of the college, or a committee appointed for this purpose. No reflection is meant when I say that many of us would not prove competent judges. If the requirement said a diploma from a high school, it would be more definite. Even then it must be admitted that sometimes men, who are not proficient, are granted diplomas even by a literary college. Take either suggestion that you please, then I would ask, are we to apply the same rule equally to all States in the Union, and to all sections of the country whether educational facilities are common or not? In plain words, would not the medical profession lose a great deal of most excellent material if we hewed to the line in this requirement?

Instead of a routine of didactic lectures in colleges, with but few clinics, we have now most of the instruction given in a clinical way, with great

¹Joseph M. Mathews, M. D., in *Cleveland Medical Gazette*.

laboratory work. Too much credit cannot be given to this manner of teaching. But in all candor let us contemplate whether or not the great principles, the positive deductions and the common-sense application of the same, are not sometimes neglected to give place to theoretical problems that are not proven, and much minutiae. Hard common sense, clinical observation and experience are as necessary features in the practice of medicine as the knowledge of the part that the staphylococcus, or streptococcus play in the production of the germ theory of disease. Let us then, in these examinations by the State Examining Boards, have many plain common sense questions, without embellishment, with things that are not absolutely necessary. In looking over a list of the examination papers used by one of the State Board of Health, a short time ago, I really wondered if all members of said board could answer them sufficiently well to obtain the average, to warrant the issuing of a diploma to them, if they did not possess one. Sure I am that I know many excellent practitioners of medicine, and able surgeons, who would have been stumped by such an examination.

The State Examining Boards must, in order to succeed, have the affiliation and full co-operation of the State boards of health, medical colleges, medical college associations, medical press, medical profession, and we may add the lay press and the people at large, for they are powerful allies or foes.

Street Cars and Public Health.,

The ordinary electric street cars, as seen in most of our cities, are, without doubt, the greatest promoters of disease and ill health. The extremes of weather in our northern climate are such that it is quite impossible to arrange for the accommodation of patients from day to day. One day may be exceedingly hot and the next day may be cold and chilly. When once the open cars are put upon the lines they are usually kept there until cold weather comes on permanently. Many cases of acute bronchitis in infants, youths, and adults have been due to nothing more than exposure

from riding in public street cars. The corporations which control these accommodations to the public, and without which suburban villages and the smaller cities would scarcely thrive, have as yet displayed little interest for the protection of passengers against changeable weather. There is no reasonable cause for the various companies not taking measures to protect the people, upon whom they depend for the maintenance of their systems. They have a decisive advantage over the public, for should they withdraw their cars, the public would suffer the inconvenience, and there are very few citizens but who would risk health rather than lose the time that would be consumed in walking back and forth from their homes to their places of business. Not one in a hundred of the passengers are capable of affording carriages, and these are the only ones who could fight the corporations, and in a great many instances the only ones who can afford carriages are financially interested in the corporations.

Treatment of Septic Infection in Puerperal Cases.³

In my opinion, the best methods of treatment of puerperal septic endometritis is as follows:—

The objects of treatment, when once the septic infection has occurred, are to thoroughly cleanse and to keep clean the infected tissues, to provide free drainage and to support the vitality of the patient.

The uterine cavity is best cleansed by means of the blunt curette, followed by the brush to entangle and remove any shreds loosened by the curette, then a prolonged hot antiseptic douche, using a large quantity of solution. The antiseptic most frequently employed in this connection is bichlorid of mercury. But it must be borne in mind that this salt, in neutral solution, is precipitated as an albuminate when brought in contact with blood or other albuminous material. To prevent impairment of strength by this contact, an acid must be added to the solution, in the proportion of five parts of the acid employed to one of the bichlorid. The antiseptic

² New York State Medical Reporter.

³ David J. Evans, M. D., *Montreal Medical Journal*, May, 1896.

tic douche, when the bichlorid is used, must always be followed by plain hot water to prevent absorption of the salt. To prevent the further growth of germs as far as possible, this treatment should be followed by the introduction of a bougie containing a drachm of iodoform, and gentle packing of the uterine cavity with aseptic gauze, to stimulate the uterus to contract and to provide drainage. This gauze must be carried right to the fundus, but if packed too tight will do more harm than good. This treatment, with the exception of curetting, may be repeated in from twenty-four to forty-eight hours, as the severity of the general symptoms may indicate. Lower range of pulse-rate, drop in the temperature, return of the lochia, and evidence of uterine contraction and involution are symptoms of a successful result of such treatment.

This treatment must be persisted in until the temperature and pulse reach normal. I have seen successful results where, for forty-eight hours, the symptoms of improvement were so slight as to make one despair of the result desired.

The administration of saline purgatives favors free drainage of the lymphatics of the peritoneum. Dr. Davis recommends that a copious amount of normal saline solution be given to the patient, either by transfusion, by the mouth, or by copious rectal injections. Strychnia and quinine should be administered in full doses at regular intervals.

The stomach should not be overloaded, but the most nourishing diet possible is indicated. The employment of predigested nutrient enemata supplements the treatment in serious cases. Alcoholic stimulants are valuable in this as in all other septic conditions, though many do not advise their use at the same time as strychnia.

Fevers of the South.⁴

Yellow fever is now a rare visitant in the South; small-pox occurs only in local outbreaks; typhus fever has not been seen by the present generation of physicians; cholera has not been epi-

demic since 1866. Gradually but surely the great epidemic diseases have been driven from the land. Even malaria has diminished extraordinarily in its extent and in its intensity, particularly above the latitude of Norfolk.

Thus one only of the continued fevers persists, almost in its original vigor. Typhoid fever is to-day in the United States, *the fever*, just as it was when the old New England physicians recognized its recurrence year after year with the fall of the leaves. Of no disease is the history better known; the measures for its prevention are everywhere recognized; the incidence of its occurrence is an unfailing index of the sanitary intelligence of a community. With good drainage, pure water and pure milk, typhoid fever goes the way of typhus and cholera. The greatest sanitary triumphs of the century have been in reducing to a minimum the mortality from this disease in the great centers of population in Europe. The mortuary returns of Washington and of Baltimore, and of many smaller cities, demonstrate that we are culpably negligent in allowing this most easily preventable disease to continue its ravages. I estimate that in the latter city there were during the year 1895 not less than 2,500 cases.

A practitioner of the Nathan Smith type, a man who has the confidence of his patients, will carry through a majority of his typhoid fever patients without a single dose of medicine, not a purge, not a vomit, not even a fever mixture. He is a patient, anxious spectator of a process he cannot arrest, a watchful guardian who will know when to act with promptitude and decision and when to refrain. Would that worthy successors of this good old man (whose article on the typhus fever of New England shows him to have been a true disciple of Sydenham) were more numerous. Some of us insist, and I am one of them, that in hospital practice a cold bath every three hours when the fever rises above a certain point, saves from 8 to 10 per cent. of the cases; while there are others,—*quot homines, tot sententiae*—who put their trust in purges, or who undertake to disinfect the twenty feet of bowel with drugs whose chief virtue is their harmlessness.

⁴ William Osler, M.D., in the *Journal of the American Medical Association*, May 23, 1896.

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HAROLD H. KYNETT, A.M., M.D.

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WM. H. BURR, M.D.

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Editorial Staff:

A. L. BENEDICT, A.M., M.D.

SAMUEL M. WILSON, M.D.

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PHILADELPHIA, SATURDAY, AUGUST 22, 1896.

EDITORIAL.

MEDICINES IN DISGUISE.

We are in receipt of samples and circulars calling attention to the value of a certain doctor's periosteal and dentition tablets. Directions for administration and prices are given in full, but we are left in ignorance of the composition of the tablets, save that those so warmly asserted to assure "an easy dentition" and relief from "cerebral irritations, convulsions, etc.," are stated to contain "a small quantity of pure carbonate of lime obtained from the oyster shell." The broad claim is made for the periosteal tablets that "applied on the gum of the affected tooth, letting them dissolve slowly, and swallowing the solution," they will, when used in the first stage

of periostitis, "mitigate the suffering and expedite the pointing of the abscess. A tetanic condition of the jaws, caused by too close crowding during the process of eruption of the wisdom teeth, is often observed. In such cases, these tablets have been used with the most positive beneficial results. Often the application of one tablet gives immediate relief."

This is only one of many instances of child-like faith with which manufacturers of secret formulas ask the medical profession their wares. Judging from appearances, the patent medicines which are household gods and which are proclaimed by the religious and secular press, the freely-distributed almanac and

barn and fence-decorations, regularly seek the support of physicians of legitimate practice. Even more impudent are the drug houses which pretend to deal through the medical profession alone and to discountenance direct advertisement to the consumer, but which cater to physicians simply for the sake of getting them to act as unpaid agents of unknown compounds. Some months ago, agents traversed the country urging that iodoform and other staple powder dressings be discarded in favor of a "discovery" whose name—in attempted Latin—appearance and proposed use suggested a mixture of zinc oxid and starch, but whose nature was revealed only by the vague information that the ingredients were of both mineral and vegetable kingdoms. We are disposed to sympathize with the manufacturer who keeps secret the knack with which he combines vehicles in order to secure a stable and palatable mixture and who publishes the proportions of all active ingredients, though we believe that the use of ready-made mixtures is to be deprecated and that the extemporaneous prescribing of one drug at a time is the ideal therapy. But we have no patience with the dealer who attempts to put us off with such general descriptions as that his compound consists of valuable saline laxatives to be given in such a dose, or who subsidizes reputable medical journals to advise the use of secret and expensive modifications of drugs in common use.

Everyone who gives the subject careful consideration must recognize the fact that, while a secret nostrum may be based on a really valuable prescription, it is sold so that its availability must be decided by one ignorant either of sickness or of the nature of the drug or of both. Thus the general tendency of all proprietary medicines is harmful, while their existence is a direct economic in-

sult to the medical profession. We have some degree of tolerance for the man, even if a physician, who indulges in open quackery, who honestly antagonizes the medical profession, and whose advertisements to the public, however misleading and exaggerated, need not deceive any intelligent person. But the man who attempts to market the same kind of secret and proprietary medicines through fawning on the legitimate but weak-minded members of the medical profession and flattering them into prescribing his wares, is not only a rascal, but a sneak. He is like the beggar who spits on our steps while awaiting our charity, or like the noisy rabble which disgraces religion and disturbs the worshippers in churches by untimely discord and then asks alms of the very people whose meditations have been interrupted.

The subject has another aspect. The men who advertise the virtues of their secret compounds to the medical profession *alone*, may be knaves, but they are by no means fools. If one company after another chooses the middle path between out-and-out quackery and the legitimate manufacture of medical supplies, it is because there is money in such a course. The symptoms of "cheek" and of child-like innocence sometimes closely resemble each other, but the prognosis of the latter is unfavorable, while the former, if not too severe, tends to a prosperous outcome. It is well to bear this in mind when a company of shrewd business men invites us to use and recommend a remedy whose nature they will not reveal and assumes to dictate to us in matters of dosage and pharmacology.

The explanation is obvious—these companies are calculating, and calculating correctly, on the presence in the medical profession of a certain proportion of men who either do not know

enough to use standard pharmacopœial remedies or who have not the stamina to resist the blandishments of samples and circulars and the opportunity to get their names into somebody's pamphlet. The fact that such men exist in our ranks imposes even a greater duty on those who have moral courage and backbone. The appeal is frequently made, "Is it not better to prescribe an unknown substance than to let a patient suffer for want of it?" Considering how many patients have been mistreated with drugs, whose names alone were known to the physician, we would answer "No." Almost the only drug of value which has been put on the market as a secret remedy during the last decade is antipyrin. That, even, was susceptible of chemical analysis and really ceased to be a secret remedy, al-

though the exact method of preparation remained unknown and the price was still inordinately high. And, further, it may be said that the only use of antipyrin, in which another coal-tar product could not be substituted with advantage, is as a surgical hemostatic. If the profession had resolutely adhered to the principle of using only substances which were advocated on rational chemical grounds, and had thrown back on manufacturers the responsibility of keeping valuable remedies from patients, instead of weakening and accepting whatever truth and whatever error proprietors of patent medicines chose to impart, the immediate benefits lost would have been slight, the immediate harm done would have been vastly diminished and we should not now be cursed with a flood of secret medicines.

ABSTRACTS.

HYDRO-GALVANISM OF THE URETHRA.*

The instrument for the application of the urethral hydro-galvanism has been devised as means to apply galvanism to parts of the genito-urinary tract without bringing the instrument in actual contact with the parts to be benefited thereby.

The principle is that of an electric bath; the electrified water gravitates in the cavities, which are thereby expanded, so that the whole surface of the cavities is more completely electrified than it could be with, and without possibility of the irritation which might arise from the use of the metal electrode, the instrument being only a vehicle for conveying the electrified fluid.

As the electricity acts differently under different conditions and applications some definitions of terms are given:—

* Robert Newman, M.D., New York, before Electro-Therapeutic Association.

Voltaic electricity (galvanic) of low potential difference and large current intensity; electricity, such as produced by galvanic battery; a current or dynamic electricity as opposed to static electricity.

Hydro-electric, pertaining to, employed in or produced by—the evolution of electricity by means of a battery in which liquids are used, (or by means of steam).

Hydro-galvanic, produced by or consisting of electricity evolved by the action or use of fluids, as hydro-galvanic currents.

Electrolysis is the decomposition or the separation of a chemical compound into its constituent parts of elements by the galvanic current. Each pole has its peculiar action.

Cataphoresis, a factor in electrolysis; can act by itself (and thus is an electric osmosis) a transmission of substances in

solution through porous membranes, under the influence, probably, of electrolysis, but without themselves being decomposed. As an electro-therapeutic agent, cataphoresis is used for the transmission of medicine through the cutaneous or mucous linings into the body of the patient.

Galvano-puncture or electro-puncture is an electrolysis by needles, the current increased to a grade of destruction of tissues.

Galvano-cautery is the short circuit of galvanism to heat a platinum wire or burner. It is used as an ecraseur, knife, cautery, or simply as a rubefacient.

The theory is to electrify the fluid used by the continuation of the current through the water to the platinum wire of the instrument, the same as in an electric bath. The theory as a practical application is well expressed by Newman Lawrence. "All that is necessary, to insure, that the water or other fluid is electrified when it reaches the patient, is to have the nozzle so constructed that the jet or jets of water form *continuous streams* for a reasonable distance after they leave the metal conductor within the nozzle." To electrify the fluid by the continuation of the current through the water to the platinum of the instrument, the same as in an electric bath.

The instrument is a conical tube of hard rubber, which can be inserted into the urethra from one to two inches; a soft rubber ring pushed against the meatus prevents leakage. A stop-cock regulates the supply of the fluid, the top of which is used as one binding post to attach the tip of one rheophore. The other end of the tube is used for the attachment of the rubber tube for the introduction of the fluid. The tube is lined with a platinum wire for the conduction of the electricity.

The fluid used may be simple salt water, bicarbonate of soda, or any other medication as the symptoms may indicate. As a reservoir for this fluid the writer uses a glass cylinder, so as to ascertain by sight the quantity of the fluid used. The lowest part of this cylinder and a portion of the instrument are connected by a rubber tube for the transmission of the fluid through the instrument. The glass reservoir is

placed at such a height that the fluid will, by its own gravity, enter the parts to be electrified without any undue pressure.

For the indifferent pole use either a pad placed on any part of the body or a sponge electrode in the hand—the latter is preferable. The end of the instrument is slightly lubricated and is introduced into the meatus so far that the conical parts fill up the orifice.

The instrument has been made conical in order that the orifice may be filled, as the sizes of the meatus and calibre of the urethras differ in different people. When the conical tube has been inserted as far as intended, a rubber ring is pressed against the outside of the meatus to prevent any leakage of the fluid. One hand only is needed to keep the instrument in place, while the other one is used to turn the stopcock (which allows and controls the afflux of the fluid to the parts) and also to regulate the current strength of the battery.

The galvanic current will be used in strength from 5 to 20 M. A., according to effects desired.

The stopcock should be so regulated as to keep the parts well filled with the electrified fluid, or even dilated so that it enters all the rugæ of the canal.

If it is wished to change the electrified fluid the instrument may be withdrawn, slightly, to allow an escape of the solution, and then the stopcock may be turned on to give a fresh supply.

The average time for a seance will be about ten minutes.

Before finishing the treatment the current of the battery should be slowly reduced to zero.

This instrument can be used in electrolysis just as well as for general galvanization. The most important part will be the stimulating of the mucous lining, healing of ulcerations, absorption of pathological conditions, restoring general debility, and improving chronic inflammations. If the fluid be properly medicated, cataphoresis or electrolysis may be applied.

The general surgical practice in urethral strictures consists in:

(1)—Gradual dilatation, which cures in only a small percentage of cases. As a rule it enlarges like the stretching of a rubber band, which contracts again after

the stretching is left off. In suitable cases it is a rational method and will not injure if used with care and skill, but in most cases it does not cure.

(2)—Divulsion may also cure in some cases, but in the majority it is dangerous; caused by rupture, traumatism, and may produce death. At the present time it is abandoned by most surgeons.

(3)—Urethrotomy is the favorite operation of to-day, and in the opinion of many, nevertheless, the most irrational method. If the cut made heals by first intention the calibre of the urethra is not enlarged; if the gap is kept apart by stretching cicatrices *must* form, which are nothing else than strictures of a worse character.

In opposition to this old method the writer has treated urethral strictures by electrolysis for twenty-nine years, has compiled and reported in 1893—1755 successful cases by different operators, all of whom vouch for the correctness of their statistics. The writer's statistics have been examined during a whole year, by a committee, who reported the statistics correct.

However, he cannot endorse other methods of so-called electrolysis, like "Forte's linear electrolysis," which is an operation consisting partly in forcible divulsion with a small dose of galvanopuncture, both objectionable features; nor the instrument of "Gautier," which principle has been abandoned by the writer more than twenty-four years ago.

The hydro-galvanic instrument may be used in tortuous urethral strictures of small calibre, in which it is difficult to pass a filiform guide and where the urethra is very sensitive, in order to dilate, to lessen the tortuosity, allay the irritability, and heal up any sore or bleeding point, and thus prepare the case for the regular electrolytic treatment. This is as a rule not necessary for the expert, but some operators may find the hydro-galvanism an aid in beginning the treatment, particularly when they find difficulty in introducing an electrode, or even a filiform guide.

Diseases of the seminal vesicles consist mostly in inflammations, sometimes being one of the causes of impotence, and also connecting with the prostatitis.

The hydro-galvanism has been easily

used in these cases with marked benefit, and has cured several cases, in which other methods only partly allayed the severe symptoms. If inflammation is present the introduction of instruments is generally very painful, and often causes derangements of the bladder. If the hydro-electric galvanism is, and undoubtedly does, pacify these parts, it will facilitate the treatment afterwards.

In genito-urinary surgery we are advised to keep the parts at rest, which is good treatment.

It may be a surprise to many that a recent publication teaches that the majority of sexual derangements in the male are caused by pathological processes in or about the seminal vessels, and that it takes extraordinary skill and long experience to make a correct diagnosis.

More plausible and rational methods for diagnosis and treatment of chronic inflammation of the seminal vesicles are stated by H. Feleki. For diagnosis he uses the "three glass test" with digital examination, and the treatment consists in massage, for which he has devised an instrument, for this purpose, as being less disagreeable to both physician and patient, and believes that results are more quickly obtained by its use than the finger massage.

Diseases of the prostate consist mostly of inflammations and hypertrophies—what has been said about inflammation of the seminal vesicles may also be applied to prostatitis.

In hypertrophy of the prostate the surgeon goes from one extreme to the other. Formerly the advice was given to use the catheter always, and wait till death comes, as nothing else can be done. Recently enterprising surgeons have practised castration and ligation of the vas deferens. Dr. Mansell Moullin reports twelve cases of orchotomy of which two died after the operation, two died six months after, and two suffered from traumatic delirium. Dr. Moullin thinks that perhaps unilateral orchotomy or even resection of the vas deferens may be followed by good results. Lallemand's method with his "Cache caustique" never became popular, notwithstanding it appeared very rational.

The passing of instruments through inflamed parts is generally very painful, and often causes derangements of the

bladder. If the hydro-galvanic application will, and undoubtedly does pacify these parts, it will facilitate the treatment afterwards of other applications.

The failure to abort urethritis has been due principally to the fact that the inflammation has caused such an irritable state and pain, which makes it impossible to introduce an instrument, syringe or any medication. The important part is to make use of a certain stage in which the inflammation has assumed such a degree of irritability that the instrument under consideration can be used. This or a modification of it can be used with more ease than any other instrument. Simple water may be used with a weak current of five milliamperes and according to circumstances salt water or even any other medication indicated. Electrolysis given by a metallic electrode, or bulb, is apt to create more inflammation and possibly a degree of cauterization. The hydro-electric galvanism is milder and is better to abort the urethritis and even arrest inflammation.

Chronic urethritis and all pathologic discharges will be more safely cured by this method than by any other which dilates the calibre of the urethra and puts the mucous lining on a stretch, cleanses and washes all parts alike.

The electric current is equally divided in every part of its course, the milder application of electricity will be better tolerated by the patient and the curative process takes place which will not be accomplished by direct applications. It may be objected to that by an introduction of an instrument of two inches, the deeper portion of the urethra may not be electrified. By practical observation however, it has been found that any part of the urethra can be electrified and if the instrument be rightly handled the fluid will penetrate any depth of that organ. If any doubt arises we have two means to make a sure thing still more certain. First is to hang the reservoir containing the fluid higher, in order to increase the pressure from above; experience has shown that under such circumstances the fluid will even enter and fill up the bladder. The other is to have the instrument made longer. It has been found from experience, however, that the latter is not necessary.

As a subdivision of chronic urethritis

may be mentioned the urethritis of the deep urethra in which generally the prostate and even the neck of the bladder is involved. Celebrated specialists have been in the habit of treating such patients with injections of nitrate of silver, often so strong as to drive patients mad and the case has been made worse. It stands to reason that such severe measures are uncalled for and cannot cure, as the solution will diffuse itself all over alike diseased as normal tissue. A better treatment is the use of solid medications to the affected parts only, either by brush, ointment or prostatic bougies. An urethroscope may be used in order to have an ocular inspection, which will enable the operator to apply the remedies *in situ*.

The passage of instruments over inflamed surfaces of the mucous lining is often too painful and the patient will not endure the introduction of instruments or local medication. Such cases have been particularly benefited by the application of the hydro-galvanization—in such manner, that the patients considered themselves cured. In some of these cases the inflammation is so great that the disease will be carried into the bladder and diseases of the bladder have been cured by hydro-galvanization in different ways of application—just as well in males as in females. A longer instrument is however desirable which can be introduced into the bladder, which has been filled with four to six ounces of either plain water or a medicated solution. Then the catheter is placed inside the bladder in the water which indirectly galvanizes the whole viscus.

Excoriations and ulcerations, particularly the latter, are very hard to cure in the urethra by ordinary means. Hydro-electro galvanism will breach over the first part of the treatment in which the irritability of the parts prevents the application with direct electricity. After a few seances with this method, treatment of indirect electricity may be used.

The solution used is in many cases plain water, but salt water may be or any other medication as indicated.

Conclusions:

1—One proposition is that the present ways of genito-urinary surgery need reformation.

(a) As they are too severe and painful.

(b) The failures are in too large a percentage comparatively with cures.

(c) Some mutilations, as cures, appear barbarous.

(d) Some measures generally used are based on erroneous theories.

2—Electrolysis in the treatment of urethral strictures has proved a success in a practice of thirty years, after patients, methods, statistics and documentary evidence have been examined by an impartial committee.

3—Hydro-electric methods are nothing else than the electric bath localized

to a certain part of the body, the current transmitted by pure or medicated water electrified.

4—The instrument devised by the writer is introduced for what it is worth and for the good it has done, and solely for that; nothing more is claimed.

5—The hydro-galvanism by this instrument will not replace the direct electric current.

7—The hydro-galvanism in genito-urinary surgery wrongly applied by the tyro in electricity may do harm, but scientifically conducted is useful, and in many cases paves the way for other treatment or other applications of electricity.

PERISCOPE.

Dr. I. N. Love having found it incumbent on him to sever his connection with the Marion-Sims College of Medicine, at St. Louis, the members of the faculty of that institution have issued resolutions showing their appreciation of his past services, and extending to him their hope that in all his future connections he will find both pleasure and profit.

The disinfectant properties of coffee have recently been demonstrated by Russian bacteriologists. Watery infusions of the roasted article destroy life in cholera and typhoid fever bacilli, the former in a few hours and the latter after a somewhat longer time. The germicidal power of the bean is limited, and the active principle is not a constituent of the natural product but develops during the process of roasting.

At a recent meeting of the Faculty of the Kentucky School of Medicine, the following appointments were made: Dr. Louis Frank, Lecturer on Clinical and Operative Gynecology; Dr. Henry E. Tuley, Lecturer on Obstetrics; Dr. Carl Weidner, Lecturer on Physiology; Dr. W. Ed. Grant, Lecturer on Anatomy; Dr. Ewing Marshall, Lecturer on Physical Diagnosis; Dr. T. C. Evans, Lecturer on Ophthalmology, Otology, and Laryngology.

The date of the meeting of the Mississippi Valley Medical Association has been changed to September 15th, 16th, 17th, and 18th, in order to permit the members and their families to take the opportunity accorded by this change to make a pleasant tour through the Yellowstone Park. It is desirable that there be a party of 100 or more, in order to obtain the benefit of the special train

service in both directions. It is urged that all members who desire to join the party should send their names to Dr. C. A. Wheaton, Chairman of the Committee of Arrangements, St. Paul, at as early a date as possible. If anyone desires to read a paper before the meeting, send the title at once to Hanau W. Loeb, St. Louis, Missouri.

The sixteenth annual meeting of the Lehigh Valley Medical Association was held August 6th at Wilkesbarre, Pa. The retiring President, Dr. G. L. Romine, of Lambertville, N. J., made an address on "Dietetics in Health." The annual address was delivered by Dr. George M. Gould, of this city. His subject was "Some Curiosities of Medical and Surgical Practice." The Association comprises the Eastern counties of Pennsylvania, and the meeting was largely attended. Dr. J. R. Bucher, of Lebanon, was elected President.

"Hard times" is the almost universal cry of the day, and no class is more seriously affected than the physician, says the *Alkaloidal Clinic*. They are employed from no special desire, but because the patient must have them, and then, in many cases, the fee is at best only grudgingly paid. This is particularly so just now; but it is noticeable that those physicians who dispense their own medicines have an advantage over the prescribing doctor. The dispensing physician has the advantage because money need not necessarily be saved to pay for the prescription, and if he is careful his fee can be collected. Sometimes it is small, but always better than nothing; and, besides, the patient associates his recovery with the physician and not with the prescription on file at the drug store. He therefore returns for further consultation, advises his friends to see "his doctor," and all come

again with big and little ailments, so that the dispensing physician is usually fairly busy, while his prescribing competitor may be doing nothing.

The ninth annual meeting of the American Association of Obstetricians and Gynecologists will be held at Richmond, Virginia, September 22, 23, and 24, 1896. Among the papers promised are:

Principles and progress in gynecology. President's address. Joseph Price, Philadelphia.

Treatment of posterior presentation of the vertex. E. P. Bernardy, Philadelphia.

Albuminuria of pregnancy. A. Fr. Eklund, Stockholm.

Obstruction of the bowels following abdominal section. George S. Peck, Youngstown.

Memorial of Dr. Hiram Corson, Traill Green, Easton.

Correspondence is pending concerning additional papers. All titles must be offered before August 25th, when the permanent program goes to press.

Dr. George Ben Johnston, 407 East Grace Street, Richmond, Virginia, is chairman of the committee of arrangements, who should be addressed in regard to hotel accommodations and railway fares.

The next great advance in anesthesia will probably be in the line of an agent which will be capable of producing insensibility to pain without destruction of consciousness. Sir Benjamin Richardson has recently been investigating and experimenting, but is not yet able to see just what form this advance will take. He objects to all the anesthetics containing chlorine, which he thinks has always been the source of danger in chloroform. To a certain extent methylic ether will produce insensibility to pain with a retaining of consciousness. It has the curious and most desirable faculty of destroying sensibility before it destroys consciousness, and recovery from it is exceedingly rapid. It may also, says Sir Benjamin Richardson, be considered the safest of anesthetics. Unfortunately it is a gas and is troublesome to administer. He thinks, however, that we may look hopefully for a method in which, by means of a single agent, we shall be able at will to suspend common sensation alone or to exalt the process into suspension of consciousness. When this object is attained with safety and facility the science of anesthesia may be considered as perfected.

The chronic constipation of infants who are fed artificially is commonly due to a deficiency of fat in the food, says Emmett Holt, in *Pediatrics*. By far the largest single ingredient in the stools of the healthy infant is fat, and this, he argues, is evidence that the food of an infant should contain more fat than is required for nutrition, the use of the excess being to keep the bowels in action. Human

milk contains a larger percentage of fat than cow's milk, and when the latter is given diluted the disproportion in the percentage of milk is still further increased. By raising the percentage of fat in artificial food to four or five per cent., Holt states that constipation will be rendered a rare occurrence. Neither cane nor milk sugar has much, if any, effect in preventing constipation, while malted foods have a certain influence, due, probably, to the laxative action of the maltose. Yale points out that gentle massage of the abdomen relieves constipation in some cases; the massage is made along the course of the large intestine from the cecum to the sigmoid. In cases in which the constipation is associated with large, hard stools it has been found very effectual.

The use of antiseptics as preservatives in beverages is growing, and many adulterations have been tolerated under that pretext. An article in the *British Medical Journal* on this subject says: A decision given by Mr. de Rutzen, recently reported, is of considerable importance, owing to the influence it must inevitably have on the administration of the Food and Drugs act. It was shown that a British wine contained 26.6 grains per gallon of salicylic acid. It was stated in defense that the drug was used as a preservative, and in a quantity so small that it could not be injurious to health. Evidence to the effect that even in small doses the drug might be injurious was given. The magistrate, however, accepted the evidence to the contrary effect, and held that the addition was not injurious to health, and seemed to imply that such addition, if made in quantities designed merely to obtain an antiseptic action, and not to increase bulk or conceal inferior quality, would prevent conviction under the Act. We believe that Dr. Corfield, in saying that the long-continued use of small doses of this powerful drug may be injurious to health, has on his side the support of medical experience and opinion. The decision is greatly to be regretted in the interests of public health, more especially as it offers a new excuse to vendors who wish to add various drugs to their foods and beverages "for antiseptic purposes."

That the soft rubber sound is proving an invaluable aid to and in gastric diagnosis, is the opinion of a writer in *Medicine*. He says that in 1875 Leube advised the use of a stiff sound as a means of diagnosis of the position of the greater curvature of the stomach. The bulbous extremity of such a sound passed into the stomach could be palpated, and in this way the position of the lowest point of the stomach determined. Leube himself, however, gave up this as a means of diagnosis, finding that where aught could be learned by this method other methods sufficed, and where it might be of value (as, for instance, in patients with thick abdominal walls) it frequently failed. Boas (*Centralblatt für Innere*

Medicin), in making investigations of the stomach by means of a tube with a revolving point, quite similar to the gyromele of Dr. Turck, found that he could frequently palpate the soft rubber sound even when it was quiet. He examined thirty cases of different kinds, and found that in twenty-five he could palpate the sound with the greatest distinctness as it lay against the greater curvature of the stomach. He therefore believes the soft rubber sound is a valuable aid to the diagnosis of gastric dilatation and gastroptosis. The examination is best made with the stomach empty or only partially filled, and with the patient recumbent. Filling the stomach with water, or having the patient stand erect, causes the greater curvature to descend several centimeters. Incidentally the author takes occasion to state that the method of gastrodiaphany is of doubtful value. He also believes in the possibility of palpating the sound that has been introduced into the rectum and colon.

The children of syphilitic parents very frequently show manifestations of a disease which is almost universally called "inherited syphilis," according to Dr. R. W. Parker, in *Charlotte Medical Journal*.

In a large proportion of the cases this inherited disease is not syphilis at all, in that the disease is non-contagious, and would be better named "inherited from syphilis."

This inherited disease is true syphilis only if it conforms to the ordinary tests which pertain to contact syphilis, and prove to be infectious and contagious.

The children of syphilitic parents occasionally inherit syphilis.

The mother suckling a child with such a disease may be infected by it.

A healthy wet-nurse and other persons brought into contact with such a child are even more liable to be infected by it than the mother.

Lymph taken from such a child, even although apparently well at the time, will probably, or possibly, invaccinate syphilis.

In reply to the question, Can a healthy woman give birth to a syphilitic child? the answer must be No.

Many women give birth to children who suffer from what is called "inherited syphilis" without themselves appearing to be infected. The explanation is obvious; this "inherited syphilis" is not syphilis in the true sense, and the mother's so-called escape depends on this fact.

There is no recent clinical evidence which fully realizes Colles' teaching, viz., a mother suckling her own syphilitic infant and escaping an infection to which a healthy wet-nurse suckling the same infant and other members of her family, who have merely handled this infant, have succumbed, the latter facts being essential, if only to establish the contagiousness of the infant's disease in any and

every given case asserted to be "inherited syphilis."

The fact that ecchymoses may occur from natural causes without any violence has considerable interest from a legal point of view. The *Medical Press and Circular*, discussing the matter says: It is now a well-known fact that more or less considerable extravasations of blood may take place beneath the skin or of the mucosa, or on to the surface of the internal viscera, from purely physiological causes, giving rise, however, to appearances which might easily be mistaken for the results of violence in some form or another. The possibly natural origin of such ecchymoses seems only to have been recognized within the last decade or two, and this fact suggests some uncomfortable thoughts concerning probable injustice to accused persons in the past. When a certain French medico-legal authority first called attention to petechial ecchymoses on the surfaces of the lungs, it was for the purpose of promulgating the view that they afforded evidence of death from suffocation in one or other of its forms. This has since been proved not to be the case, for they have been met with in connection with the action of particular poisons, particularly those belonging to the benzine series, as well as after death from burns, etc. Although these extravasations thus lose the diagnostic value which had been attributed to them, the subject is one well worthy of attention in order that full light may be thrown upon the mechanism of their production. For instance, they are not unlikely to occur in the insane, and in this event their presence on the skin would not unnaturally give rise to unfounded suspicions of violence at the hands of the attendants. In a paper dealing with this subject at a recent meeting of the Royal Medical and Chirurgical Society, Dr. Lediard laid particular stress upon the possibility of such ecchymoses on the mucous membrane of the vulva and vagina leading to the presumption of rape. Their position in the body, their delicacy of structure, and their vascularity render this portion of the female anatomy peculiarly liable to exhibit punctiform ecchymoses in virtue of the same causes that determine their appearance elsewhere. Mr. Hutchinson quoted a striking instance of the production of extensive ecchymoses in an elderly gentleman as the result of an attack of whooping-cough contracted from his grandchild. As any medical man is liable to be called upon to discharge the delicate and responsible functions of medical assessor in criminal cases, it is highly desirable that a knowledge of this curious phenomenon should be widely disseminated, for it is not difficult to imagine various circumstances in which these ecchymoses would probably be ascribed to violence or asphyxia, instead of to their real cause, whatever that might be in the particular case.